

CHARGE NUMBER: 2105

PROJECT TITLE: Filter Development

PROJECT LEADER: Walt Nichols

PERIOD COVERED: February, 1983

I. TOBACCO EXTRUSION

Objective:

Develop an extruded foam tobacco product.

Status:

Processing parameters effecting rod density were identified. Reducing die orifice size and increasing extrudate velocity are the most significant parameters. Rod density was reduced to ≤ 0.25 g/cc, equivalent to a conventional cigarette.

Several formulations having different binder levels were extruded to determine the relationship between cell wall strength and rod pressure drop. Currently, typical rod RTD is 6 - 9 inches of H₂O (total encapsulation). A target RTD of 2 - 2.5 inches of H₂O is achievable by permitting bypass between the wrapper and rod. A less conspicuous method involving extruding a small hole down the center of the rod was tested. Unfortunately the temperature of the smoke stream was sufficient to degrade the filter. Additional testing will be done to diffuse the heat over a large surface area by using a multiplicity of holes.

Several samples were produced for subjective screening. Formulations having higher burley content are preferred for eliminating off-taste.

Extruded sections of foamed tobacco rod were evaluated as filter elements. A 27 mm, 3.75 inches of H₂O RTD section yielded a 38% efficiency. While this is lower than a cellulose acetate filter of equal RTD, it may have applications.

Plans:

Paperwrap a 0.25 g/cc tobacco rod at 16% OV March, 1983

Produce a subjectively acceptable product Continuous

II. FILTER DEVELOPMENT

A. Bridon Polypropylene Fibers

Objective:

Determine the process requirements for producing a subjectively acceptable Bridon polypropylene filter.

Status:

Several adhesives were evaluated for their fiber bonding capability. Filter firmness values were in all cases insufficient. This result appears to be attributable to overblooming the tow. Complete decrimping of the fiber seems to require more force using the Hauni AF-1. The Hauni AF-2 used by Bridon apparently can bloom the tow with less fiber breakage. Modifications to the AF-1 will be made to make it replicate the action of an AF-2.

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Plans:

Complete adhesive evaluations April, 1983

B. Plasticizer Applicator

Objective:

Evaluate a two-sided plasticizer applicator for filter making.

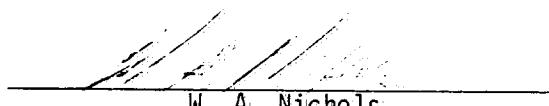
Status:

Working in collaboration with Engineering U.S.A., a two-sided plasticizer applicator has been installed on a Hauni AF-1.

Evaluation will begin shortly to determine if a more uniform plasticizer application can be achieved with this method.

Plans:

Complete evaluation and transfer to Manufacturing May, 1983



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